

REMARKS

The present invention is a receiver and a method of data reception. In accordance with the invention, a memory 114, including an addressable storage array, stores a sequence of data samples contained in a time division multiplexed signal, as illustrated in Fig. 3. The time division multiplexed signal is from a plurality of channels in the incoming data sequence 202. Each successive data sample belongs to a channel different from a channel to which an immediately preceding data sample belongs. The memory outputs the stored data samples in a sequence of data groups equal in number to the number of channels, which in the example of Fig. 3, is five. Each data group has a plurality of samples as illustrated in Fig. 3. The contents of the memory 114, which are read in as a sequence of data samples from different channels, are read out as a sequence of data groups, as illustrated in the bottom of Fig. 3. Thereafter a decoder, as exemplified by decoder 116 in Fig. 2, which is responsive to the sequence of data groups, decodes the data samples within the sequence of data groups and outputs the decoded data samples of the plurality of data groups from the plurality of channels.

This architecture has distinct advantages over the prior art of Fig. 1. As described in Applicants' specification with reference to Fig. 1, the prior art hardware identified by reference numeral 10 requires replication for each channel.

In contrast, the present invention has an exemplary architecture illustrated in Fig. 2 which utilizes only a single memory 114 and an inner decoder 116 to achieve partial decoding of data for the R channels of Fig. 1. The present invention requires substantially less hardware requirements than the prior art. See Applicant's

specification, beginning on page 17, line 9, for a discussion regarding the hardware reduction achieved by the present invention.

A preferred embodiment of the present invention includes the combination of an inner decoder 116 which receives groups of most likely bits from multiple channels in combination with an outer decoder 102 which decodes the decoded most likely bits from the inner decoder and hard decisions produced by multichannel phase tracking 112. This architecture has the aforementioned reduced hardware required for performing inner and outer decoding compared to the prior art of Fig. 1. As seen from Fig. 1, each of the R decoders and modulator 10 processes a single channel output by the mode select multiplexer 18 while the present invention substantially reduces the hardware by a factor of the overall number of Z channels.

The Examiner has requested amendments to claims 16, 26, 27 and 28 which have been incorporated in the amendments herein. Further amendments have been made to claims 27 and 28 to improve their form for reexamination.

Claims 1 and 17 stand rejected under 35 U.S.C. §102 as being anticipated by United States Patent 6,041,050 (Sanders). This ground of rejection is traversed for the following reasons.

As the Examiner is aware, an anticipation rejection requires that every limitation of the claim which is rejected on grounds of anticipation must be literally present or inherently present. When this standard is applied to rejected claims 1 and 17, it is submitted that those claims are not anticipated by Sanders. Specifically, claim 1 recites:

A receiver comprising:
an input in the receiver which receives a time division
multiplexed signal containing a plurality of channels which has been
transmitted from a transmitter;

a memory coupled to the input, including an addressable storage array which stores a sequence of data samples contained in the time division multiplexed signal from the plurality of channels with each successive data sample belonging to a channel different than a channel to which an immediately preceding data sample belongs and outputs the stored data samples in a sequence of data groups equal in number to a number of the plurality of channels with each data group containing a plurality of samples from one of the plurality of channels; and

a decoder, responsive to the sequence of data groups, which decodes the data samples within the sequence of data groups and outputs decoded data samples of the plurality of data groups from the plurality of channels.

and claim 17 recites:

A method of data reception comprising:

at an input of a receiver receiving a time division multiplexed signal containing a plurality of channels which has been transmitted from a transmitter;

storing with a memory a sequence of data samples contained in the time division multiplexed signal from a plurality of channels with each successive data sample belonging to a channel different than a channel to which an immediately preceding data sample belongs;

outputting from the memory the stored data samples in a sequence of data groups equal in number to a number of the plurality of channels with each data group containing a plurality of samples from one of the plurality of channels;

using a decoder which is responsive to the sequence of data groups to decode the data samples within the sequence of data groups; and

outputting from the decoder the decoded data samples of the plurality of data groups from the plurality of channels .

Each of claims 1 and 17 requires that stored data samples are output in "a sequence of data groups equal in number to a number of the plurality of channels with each data group containing a plurality of samples from one of the plurality of channels". The Examiner construes the time multiplexed channels illustrated in Fig. 5c which illustrates channels A, B and C and possibly the "empty" designation to be the referenced channels. In Section 3 of the Office Action the Examiner states

that Sanders "outputs the stored data samples in a sequence of data groups equal in number to a number of the plurality of channels with each data group containing a plurality of samples from one of the plurality of channels (Sanders fig. b: outputs of 36a to 36m which are collectively 19)(emphasis added)". However, it is seen that Fig. 5c illustrates channels A-C and possibly the "empty" designation which is total of four channels. The four channels identified by the Examiner in Fig. 5c differ in number than the number of outputs 36a-36m. In other words, there are far more channel outputs, as the Examiner has construed them to be in Fig. 6, than the four channels in Fig. 5c. Accordingly, to the extent the Examiner's construction of Sanders is understood, it is submitted that the Examiner has not been demonstrated that the relationship recited in claims 1 and 17 of "a sequence of data groups equal in number to a number of the plurality of channels" has been met. Moreover, it is submitted that there is no basis in the record why a person of ordinary skill in the art would be led to modify the teachings of Sanders to arrive at the subject matter of the claims.

Accordingly, it is submitted that claims 1 and 17 are patentable.

Claims 5 and 20 stand rejected under 35 U.S.C. §103 as being unpatentable over Sanders in view of Linsky. Linsky does not cure the deficiencies noted above with respect to Sanders.

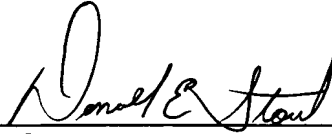
In view of the foregoing amendments and remarks, it is submitted that each of the claims in the application is in condition for allowance. Accordingly, early allowance thereof is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with the

filing of this paper, including extension of time fees, to Deposit Account No. 01-2135 (199.36691X00) and please credit any excess fees to such Deposit Account.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read "Donald E. Stout", is written over a horizontal line.

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